Local Work Instruction:
Noble Discoverer: Desalination Unit Waste Discharge - D005

Approved By:
Scope:
Issue Date:
Revision level:

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SCOPE:

This document offers work level instructions for the sampling, testing, and reporting associated with desalination unit effluent waste discharges while operating under the guidelines of the NPDES General Permit AKG-28-8100, onboard the *Noble Discoverer*. Desalination unit wastes will consist of effluent associated with the process of creating freshwater from seawater. The effluent waste consists of residual high-concentration brine similar to seawater in chemical composition and is discharged to the receiving waters. The M-I SWACO NPDES Compliance Specialist will sample, test and record all data onto the NPDES Master Spreadsheet. All records will be submitted to the Shell Environmental Department for entry onto the netDMR and submission to EPA. No chemicals will be added to this effluent; effluent consists of residual high-concentration brine similar to seawater in chemical composition.

RESPONSIBILITY:

The M-I SWACO NPDES Compliance Specialist is responsible for ensuring that this LWI has been provided to each person prior to conducting this task for the first time. Any personnel that may perform the tasks outlined in this document must be familiar with the process, before the rig begins operating under NPDES regulations.

1.0 References:

1.0 NPDES GP AKG-28-8100
- 1.0.1 Table 6 – *Effluent Limitations and Monitoring Requirements for Desalinization Unit Waste (D005).*
- 1.0.2 Table 11 – *Effluent Limitations and Monitoring Requirements for Uncontaminated Ballast Water (D010).*

1.1 Noble Discoverer As-built #1599-6010
1.2 Figure 2 – Discharge Points (Weston)
1.3 Noble Discoverer Best Management Practices, April 2015.
1.4 Noble Discoverer Quality Assurance Project Plan, April 2015.
1.5 M-I SWACO (or Misc.) Standard Operating Procedures: 1006, 2001, 2012, 2003, 2008, 3004, ENV001.01, TOX045.02, TOX002.65, TOX012.06, TOX014B.02, TOX043.06
1.6 Shell Chemical Inventory and Additives Use Management.
1.7 Shell Exploration & Production Company Alaska Venture 2015 Noble Discoverer Waste Management Plan.

2.0 General Requirements:

2.0 The M-I SWACO NPDES Compliance Specialist is responsible for discharge sampling, testing, and reporting to Shell Environmental Department while operating under NPDES GP AKG-28-8100.
2.1 The Shell Environmental Department is responsible for maintaining the Discharge Monitoring Report (netDMR) and submitting to EPA all discharges sampling, testing and results on a monthly basis.
2.2 Sample collection will be done in accordance with the Quality Assurance Project Plan.
2.3 Noble is responsible for the annual testing, operating, and repairing of all equipment associated with this discharge.

3.0 Safety Guidelines:

3.0 Before any operations can take place, all personal involved in this process must complete the following details if required by operator or contractor:

3.0.1 The Pre-Tour Meeting is when daily activities are discussed.

3.0.2 Job Safety Analysis will be completed with all involved parties present.

3.0.3 Review Risk Assessment, if applicable.

3.0.4 Noble Permit to Work

3.1 Appropriate personal protective equipment must be worn at all times.

4.0 Description:

4.0 Seawater is withdrawn through a sea chest located in the generator room and supplies two evaporator units and two reverse/osmosis units which generates all fresh water used on-board.

4.1 Desalination wastewater generated by the evaporators and reverse/osmosis equipment is discharged on either or both port and starboard sides of the vessel.

4.2 Inline flow meters display the rate of flow (gpm) in real time. Total gallons discharged and observations will be recorded on the NPDES Master Spreadsheet. The rate of flow can also be viewed directly off the meter. Total gallons discharged will be recorded on a daily basis. In the event that a flow meter goes fails, volume estimates will be based on historical data. Observations will be recorded on the NPDES Master Spreadsheet.

4.3 Sample ports have been installed near the discharge locations on both the port and starboard side. Samples needed for analytical testing (Initial toxicity, pH, and WET) will be collected using these ports.

4.4 Visual sheen method will be performed daily while operating under the NPDES GP. Visual observation is performed during daylight hours and static sheen testing is performed when receiving water cannot be seen. Visual observations and static sheen tests are recorded on the NPDES Master Spreadsheet.

4.5 Chemicals added to the desalination units are metered. The M-I SWACO NPDES Compliance Specialist is responsible to record all chemicals added to the discharge stream on the NPDES Master Spreadsheet. The M-I SWACO NPDES Compliance Specialist will submit summations of chemical concentrations to Shell Environmental Department on a monthly basis utilizing the NPDES Master Spreadsheet.

4.6 The M-I SWACO NPDES Compliance Specialist will immediately report to Shell Environmental Department at 907-830-7435, of any upset condition.

5.0 Effluent Limitations and Monitoring Requirements - Desalination Waste (D005):

Effluent Parameter	Effluent Limitations		Monitoring Requirements	
	Average Monthly Limit	Maximum Daily Limit	Sample Frequency	Sample Type
pH	Report (s.u.)		Monthly	Grab
Free oil	No discharge [note 1,2]		Once/discharge	Visual /Grab
Total Volume	Report (gal)		Monthly	Flow Meter
WET	Report (TU_c)		Use rapid toxicity test 4X/well as initial screen. If initial screen passes, WET is not required.	Collect grab sample for analysis if results show potential toxicity or 1X/well if discharge >10,000 gal during 24 hr and if chemicals are added to the system.
*Temperature	Report (°F)		Continuous	Measure

* **Note**: Temperature readings are required when desalinized waste is mixed with non-contact cooling water prior to discharge.

6.0 Clean-up:

6.0 Follow housekeeping procedures.

7.0 Contingency:

7.0 In the event of a flow meter failure, flow will be based on historical data.

7.1 In the event that a complete failure of the potable water system, fresh water will be obtained from other vessels.

Revision Log:

Date:	Document History:	Revised/reviewed by:	Location: